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Submitted to the Court

The Trustees of the Medical Faculty

of the University of the State of New York
in the County of New York

For the Degree of Doctor of Medicine

By William Conyell

of

New York

April 10th 1826

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An
Inaugural Dissertation
on
Cynanche Trachealis

Submitted to the Examination
of
The Trustees & Medical Faculty
of the
University of Pennsylvania
On The Twenty-first Day of December 1825.

For the Degree of Doctor of Medicine

By William Coryell
of
New Jersey.

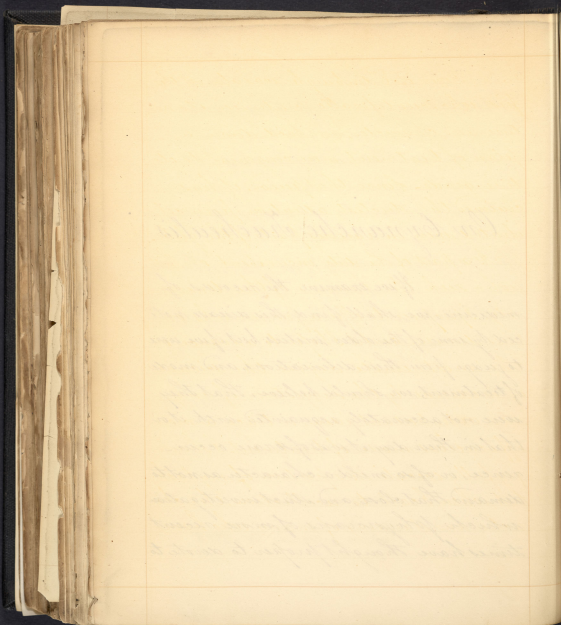
Passed March 25th 1826

Thompson's Repertory
or
Cyclopaedia of the
Practical Medicine

Subscribed to the examination
of the
the student of Medical Faculty
of the
The University of Pennsylvania
for the year ending December 1857
For the purpose of Doctor of Medicine
By William B. Smith
of the Faculty
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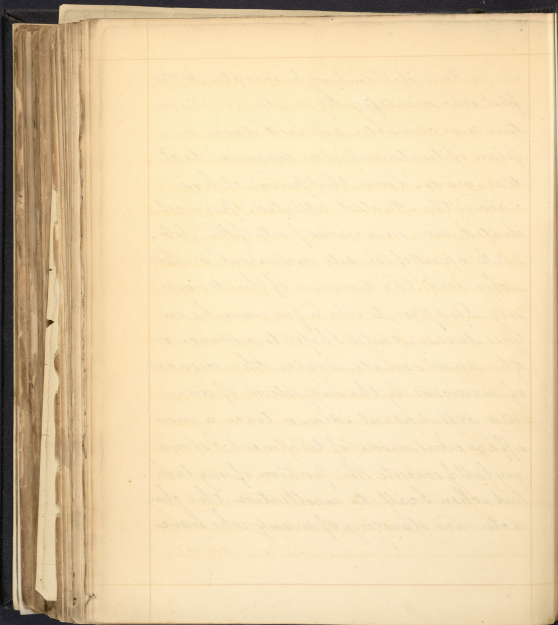
Corynanche trachealis

If we examine the records of medicine, we shall find this disease noticed by some of the older writers: but if we were to judge from their delineations, and mode of treatment, we should believe, that they were not accurately acquainted with it, or, that in their day it was of so rare occurrence, or of so mild a character, as not to demand that close, and strict investigation which physicians of more recent times have thought proper to devote to

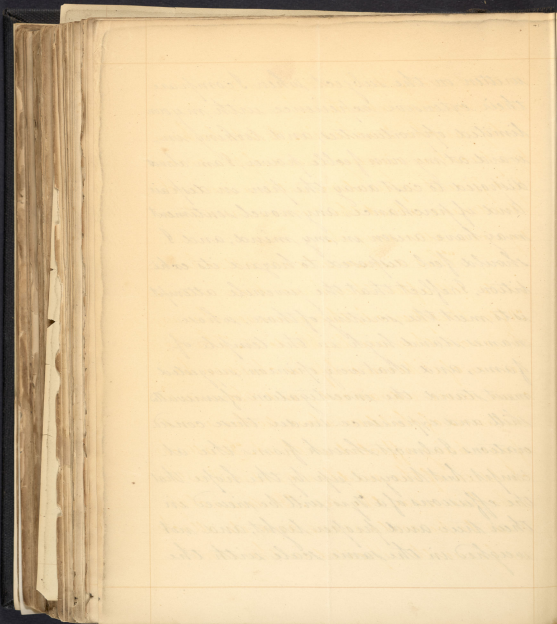


it. Dr. Home of Edinburgh was almost the first who scientifically scrutinized its nature and character, and laid down a plan of treatment, more congenial to its true grade. Since that period, it has claimed the strictest attention from celebrated men in various parts of the globe.

As a part of the duty incumbent on those who seek the honours of the University, I propose to offer a few remarks on this disease. Could I hope to advance in the most remote degree the science of medicine by the suggestion of any new or important idea, or trace a more efficacious mode of treatment, I should joyfully execute this portion of my task: but when I call to recollection the character and standing of many who have



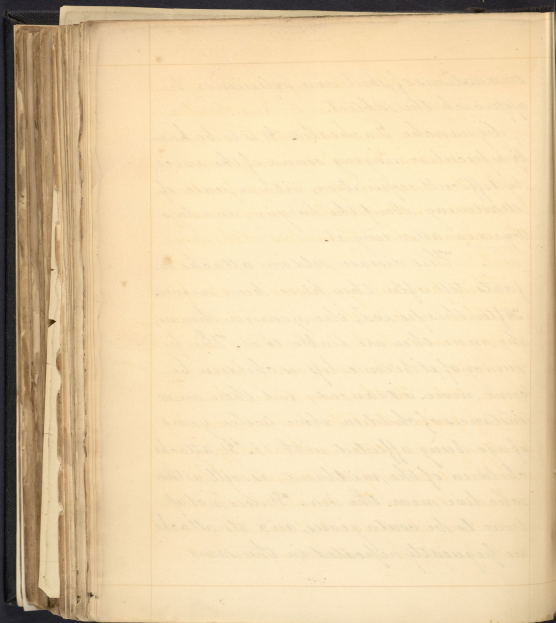
written on the subject: when I compare
their extensive experience with my own
limited opportunities, and looking in-
ward at my own feeble power, I am almost
disposed to cast away the pen in despair.
And if perchance, any novel sentiment
may have arisen in my mind, and I
should feel disposed to hazard its exhi-
bition, I reflect that the juvenile attempt
is to meet the scrutiny of those, whose
names stand high in the temple of
fame, and that every opinion suggested
must stand the investigation of univ-
ersal skill and experience: under these consid-
erations I almost shrink from the at-
tempt: but buoyed up by the hope, that
the effusions of a Tyro will be viewed in
their true and proper light, and not
weighed in the same scale with the



emanations of skill and experience. I approach the subject.

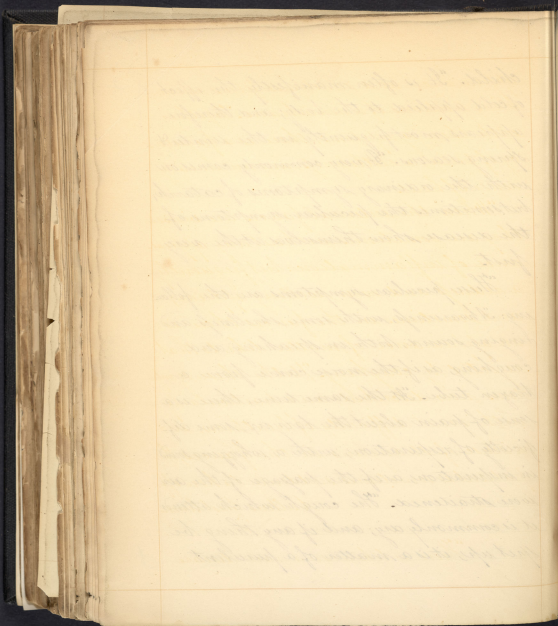
Cynanche Trachealis. "It is to be known by a peculiar ringing sound of the voice, by difficult respiration, with a sense of threatening about the larynx, and by a pyrexia attending it. +

"This disease seldom attacks infants till after they have been weaned. After this period, the younger they are, the more they are liable to it. The frequency of it becomes less as children become more advanced; and there are no instances of children above twelve years of age being affected with it. "It attacks children of the midland, as well as those who live near the sea. "It does not appear to be contagious, and its attacks are frequently repeated in the same



child. "It is often manifestly the effect of cold applied to the body; and therefore appears most frequently in the winter & spring seasons. It very commonly comes on with the ordinary symptoms of catarrh; but sometimes the peculiar symptoms of the disease show themselves at the very first.

"These peculiar symptoms are the following: A hoarseness, with some shrillness and ringing sound, both in speaking and coughing, as if the noise came from a blown tube. At the same time, there is a sense of pain about the larynx, some difficulty of respiration, with a whizzing sound in inspiration, as if the passage of the air were straitened. The cough which attends it is commonly dry; and if any thing be spit up, it is a matter of a pusulent



appearance, and sometimes films resembling portions of a membrane. "Together with these symptoms, there is a frequency of pulse, a restlessness, and an uneasy sense of heat.

"When the internal fauces are viewed they are sometimes without any appearance of inflammation: but frequently a redness and even swelling appear; and sometimes in the fauces there is an appearance of matter like to that rejected by coughing. "With these symptoms now described, and particularly with great difficulty of breathing, and a sense of strangling in the fauces, the patient is sometimes suddenly taken off."

Bullens first lines

"There is likewise a rare disease,

sometimes occurring in certain countries, never in others, called the croup (by nosologists *cynanche stridula*) "In this disease, the respiration is laborious, the inspiration sonorous, with hoarseness, a ringing cough and a swelling scarce to be discerned. "It is a disease that infects young children almost only...

Brown's Elements of Medicine

"The croup is an inflammation of the upper part, and the peripneumonia of the lower part of the same organ viz, the trachea or windpipe.

"Dr Boichman of Hanover believes that the acute asthma of Miller or hives, has been confounded with the angina polyposa or croup, which has occasioned the great difference in the treatment recommended by authors; as the disease

has been esteemed inflammatory by some,
and spasmodic by others.

"The convulsive asthma, which I have
witnessed in one child, was readily dis-
tinguished from the croup; as there
was simply a great exertion in breathing,
but without the harsh sound which
attends the inspiration in the latter.
A convulsive difficulty of respiration may
thus be easily distinguished from the
croup: as in the former the patient
draws in the breath easily, and then
voluntarily closes the larynx, and volun-
tarily uses great exertion in forcing out
the breath, with design to relieve some
pain by this violent exertion, as in par-
oxysms epilepsy-

"On the contrary in the croup, the
breath is easily expired, but the inspi-

rations are attended with the utmost difficulty. "This difficulty of inspiration may be seen by viewing the region of the stomach; as when the child raises the sternum for the purpose of drawing in its breath, the pressure of the atmosphere on the pit of the stomach presses the diaphragm upwards, and makes a sudden and great hollow in the scrobiculus cordis. "This difficulty of inspiration and not of expiration, is also known by the harsh sound, which only attends the inspiration."

Darwins Zoonomia.

"The croup is an inflammatory affection of the mucous membrane of the trachea and larynx, which in some instances extends, however even

to the bronchia and over the surface of the lungs, to which children are peculiarly subject, producing an exudation that appears partly in a membranous coating, and partly in a fluid accumulating pus, and is attended with a peculiar wheezing sonorous inspiration, compared by some to the crowing of a cock, a similar or stridulous sound in coughing and speaking, great difficulty of breathing, thirst and other febrile symptoms, as likewise by some degree of spasmodic affection.

"Some physicians have judged it proper to divide croup into two species, viz: idiopathic, where the disease is primarily and extensively seated in the trachea, bronchia and surface of the lungs; and symptomatic where it appears as the consequence of some previous disorder,

such as the measles, scarletina, or cynam-
che maligna." Thomas's practice.

Wentham. "Angina stridula." This is the cy-
nanche trachealis of Dr. Cullen; a disease
for its singularity and fatality, has fixed
the attention of pathologists and prac-
titioners. We wish we could solve the dif-
ficulties, or direct a more scientific or suc-
cessful method of cure than has hitherto
been adopted.

"The angina stridula (from strid-
ere to make a noise) is called also an-
gina membranacea, interna, pernicio-
sa, polyposa, catarrhus suffocativus, and
morbus strangulatorius, it is chiefly a
disease of children and is distinguished by
a difficult inspiration, sounding as through
a brass tube, harsh cough, with seldom
any tumor in the throat, and no diffi-

culty of swallowing, a cold, and short cough
precedes for some days, when the harsh
breathing comes on, with little or no fever.
sometimes suddenly, at others more gradual-
ly, increasing by degrees, untill suffocation
comes on, which closes the scene. "The other
functions are scarcely disturbed. "The pulse
at first, a little harsh, or slightly quickened, in
the progress becomes very rapid and low.
"The face at first flushed, is in the latter
stages livid, though sometimes full. "The
stomach and bowels are not apparently
affected. "The cough is dry, flaky substances
are spit up, and the patient struggles
with an attempt to spit up something
solid from the trachea. "The internal
fauces are in a very few instances, swollen
and red. "It is sometimes epidemic, seems
more frequent in low marshy situations,

than in more elevated spots, and peculiar to children, at least scarcely ever attacking those above twelve years: Parr."

The professor of the practice of medicine in the N-York University, Dr. Hosack, divides this disease into three stages, each requiring a peculiar treatment viz the forming, febrile, and membranous or purulent.

Having thus detailed the symptoms of this formidable disease, as delineated by a few of the most celebrated writers on the subject, and deeming it unnecessary to extend the description further. I proceed to enumerate the causes. These I shall divide into remote and proximate, observing once for all, that the remote cause, or causes of symptomatic croup must ever be deemed the same as those exciting the original

disease, as this form of it can only be consid-
ered as an extension of original disease to
the parts usually affected in this malady.

The remote cause of idiopathic croup, has
been universally attributed to cold, suddenly
applied to the body, or to the operation
of those causes which produce catarrh, i.e.
the effect of fevers which diminish or sus-
pend perspiration from its usual a natu-
ral outlets.

But the proximate cause, has afforded
a wide field for dispute. Some contending
that it was spasm; others strenuously en-
deavouring to prove, that it was inflamm-
ation, and that spasm, if it ever existed, was
merely the effect of inflammatory irritation.
With pleasure could we read, the various
reasons adduced by each party in support
of their favorite hypothesis, and yield af-

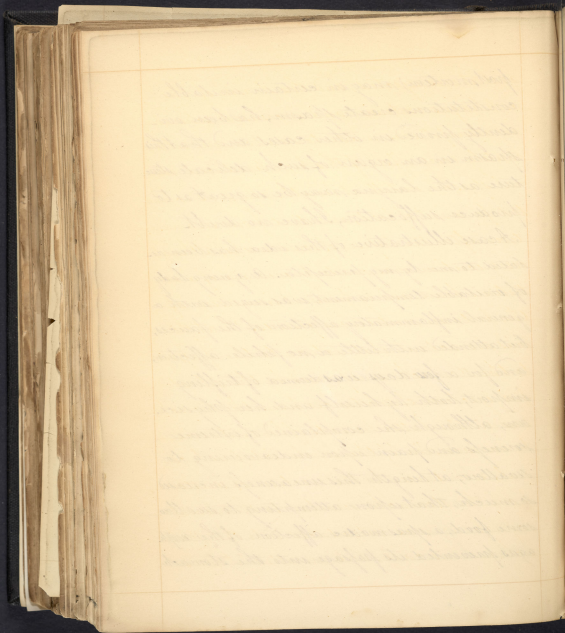
sent now to the one side, then to the other,
as the plausibility of the arguments advan-
ced might for the moment carry us: but
this pleasure is converted into intense inter-
est, when we discover, that this difference
of opinion, demands a still greater dispo-
nance of practice, and that upon an
accurate knowledge of the proximate cause
of this terrific disease, the lives of many,
very many, may depend. It is true, that
the advocates of its spasmodic origin ad-
mit, that in its latter stages it becomes de-
cidedly inflammatory: but by a judicious
administration of remedies best calculated
to remove spasmodic affections, prompt-
ly given at an early stage, you may prevent
the inflammatory effusion, or secretion,
which ultimately chokes the passage
to the lungs. On the other hand, you are

told, that the idea of spasm, as the primary proximate cause tends to the exclusion of the only mode of treatment that will subdue the disease. If the advocates of each opinion adduced arguments merely in corroboration of their cause, we might still believe, that post mortem examinations might settle the point: but here again, we are at sea, each party claiming proof from this very source; and we have no right to dispute credence to either side; but how shall this discrepancy be reconciled: only upon the supposition, that preconceived theory may have so warped the mind, as to exclude evidence, unless it be of the most palpable and satisfactory nature. That slight inflammatory action, not yet arrived at the suffusion, or secretion point, and so little advanced as to evidence itself strongly.

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post mortem) may in certain invariable constitutions create spasm, has been evidently proved in other cases, and that this spasm in an organ of such delicate structure as the larynx may be so great as to produce suffocation, I have no doubt.

A case illustrative of this idea has been related to me by my preceptor. A young lady of irritable temperament, was seized with a general inflammatory affection of the fauces, but attended with little or no febrile affection; and for a few days was deemed of trifling import, both by herself and her physician, although she complained of extreme soreness and pain upon endeavouring to swallow; at length this uneasiness increased so much, that upon attempting to swallow some food, a spasmodic affection of the oesophagus prevented its passage into the stomach.



and it was rejected, and this spasm of the
oesophagus continued and increased whenever
an attempt was made to swallow, and ulti-
mately every effort of this kind produced gen-
eral spasm, untill at length she was exhaused
for want of food, and died from inanition
after the lapse of some weeks, although
every exertion was made by enemata of a nu-
tritious kind, and by frequent immersion of
the body in nutritious fluids. That there
was no actual obstruction to the passage
to the stomach, was proved by the repeated
free ejection of substances from the stomach,
and in the latter periods of her existence,
by an inversion of the whole intestinal ca-
nal, as evidenced by the ejection of matters
from the stomach similar to the enemata.
A probang was introduced into the stom-
ach in this case, and an attempt was

made to support the powers of life by the injection of substances through a canula, but the irritability of the stomach was so great, at the time the attempt was made, as to render it ineffectual.

The opinion of spasm, as the proximate cause of cynanche trachealis is not corroborated by analogy, nor can it be reasonably supposed, that the action of the remote cause would be likely to create spasmodic or inflammatory action. The most violent spasmodic diseases, are more commonly the result of opposite causes, for example Tetanus is frequently the attendant of hot climate, and occasioned by the relaxing effect of heat. And let me ask, does tetanus ever end in inflammation unless arising from a local cause, and in that case, if active inflammation can be by artificial means carried to the

suppurative point, the original disease is relieved. and in *Cynanche trachealis*, when ever the inflammation is carried to the suppurative, suffusive, or secretive point, the violent convulsive breathing appears to abate. Let the point be examined a little further, a child is exposed to the action of cold, a torpor is produced upon the exhaling vessels, a portion of the fluid usually carried off by insensible perspiration is retained, and for a certain period the vessels thus exposed act with diminished power, this must distend the residue of the vessels, and perhaps excite increased action from its acrimony. From a peculiar association of action between the vessels of the skin and throat, in certain constitutions, and perhaps generally, in the constitution of children, the vessels of that part feel more directly

and more acutely the injury sustained (if such expression is correct), than the general map of pepsels. and how do they feel it? either by a peculiar distension, or by increased acrimony; in either case reasoning from the nature of the effecting cause, the structure of the part affected, or from analogy. I should presume that inflammation would be the result; and I can easily imagine that the inflammatory process in its early stage, before the diseased pepsels have relieved themselves by the discharge of the material, which forms the new membrane, may (in a part as exquisitely sensible as the larynx and trachea) so irritate the nervous filaments, as to produce violent spasms, and that the continuance of this spasm for a few hours should destroy life. Was I therefore to assume an opinion in this case, it would be.

That the remote causes of idiopathic croup act by diminishing the secretion and exhalation of the insensible perspiration.

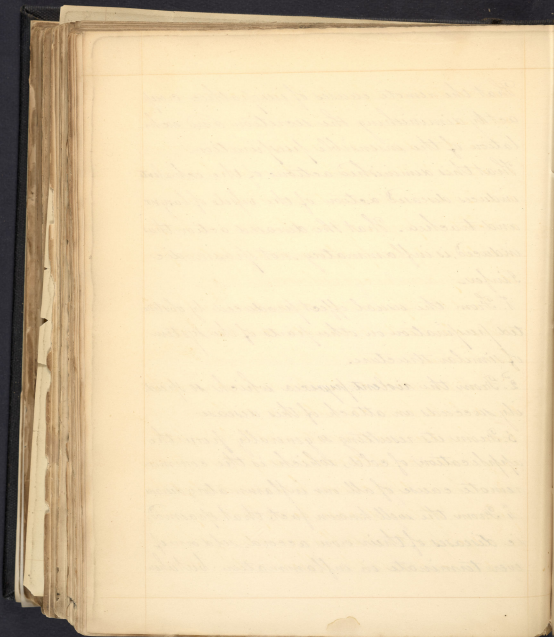
That this diminished action of the exhalant induces diseased action of the vessels of larynx and trachea. That the diseased action thus induced, is inflammatory not spasmodic. *Inferv.*

1. From the usual effect produced by obstructed perspiration on other parts of the system of similar structure.

2. From the violent pyrexia which so speedily succeeds an attack of this disease.

3. From its resulting so generally from the application of cold, which is the common remote cause of all our inflammatory diseases.

4. From the well known fact, that spasmodic diseases of their own accord, seldom if ever terminate in inflammation: but when



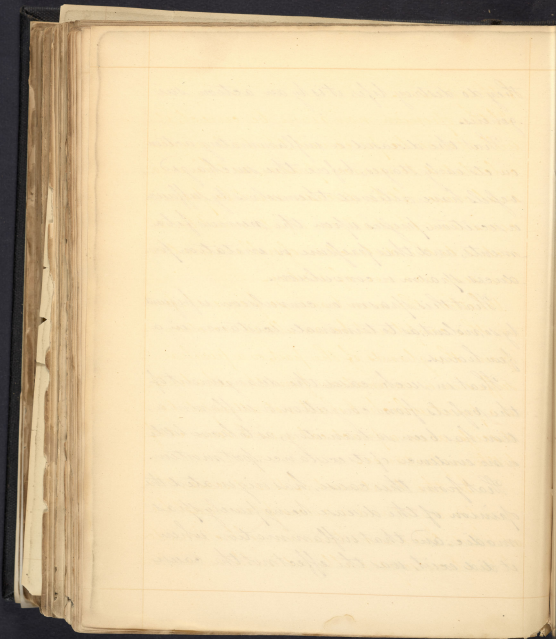
they do destroy life, it is by an action sui generis.

That the diseased or inflammatory action in its early stages, before the surcharged vessels have relieved themselves by suffusion or secretion, presses upon the nervous filaments, and this pressure or irritation produces spasm or convulsion.

That this spasm or convulsion is frequently so violent, as to terminate existence in a few hours.

That in such cases, the derangement of the vessels from congestion or inflammation has been so transitory, as to leave little or no evidence of its existence post mortem.

That from this cause, has originated the opinion of the disease being purely spasmodic; and that inflammation when it did exist, was the effect not the cause



of this spasm.

If the opinion now given be correct, it will at once be perceived, that all means calculated to remove spasm, as the original cause of the disease must be pernicious. And that all our efforts must be directed to the destruction of inflammation, as a sine qua non of victory.

Whether the membrane so frequently found in this complaint, be an altered secretion from the glands of the part, or a peculiar suffusion or emanation from the exhalents, is a point which I shall not attempt to discuss, as in a practical view I deem it of little importance.

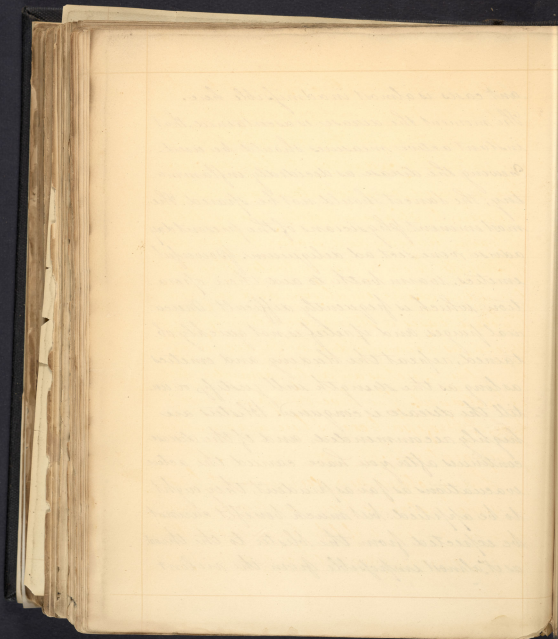
In the treatment of this disease, the most prompt and rigorous plan must be adopted. There is no time for reflection; deliberation is generally advisable in import.

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ant cases is almost inadmissible here.

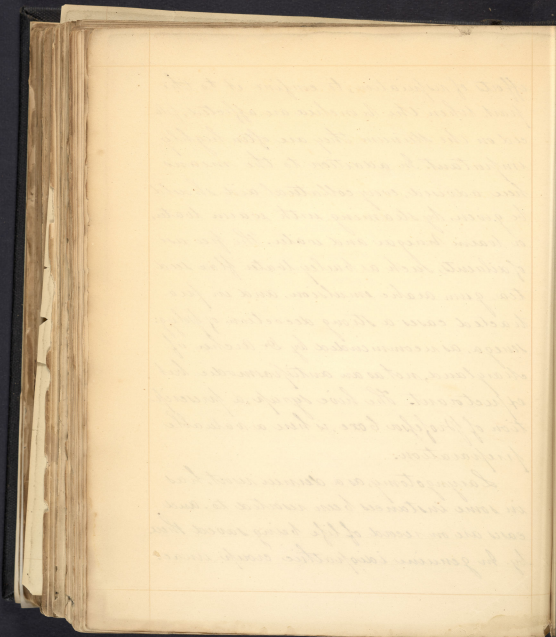
The moment the disease is ascertained, that instant active measures should be used.

Viewing the disease as decidedly inflammatory, the lancet should not be spared. The most eminent physicians of the present day advise *vene sect. ad deliquium*. Powerful emetics, warm bath to aid their operation (which is frequently difficult). Mucual purges, and if relief is not quickly obtained, repeat the bleeding and emetics as long as the strength will justify, or untill the disease is conquered. Blisters are highly recommended, and if the disease continues after you have carried the active evacuations as far as prudent, they ought to be applied: but much benefit cannot be expected from the blister to the throat as it is almost impossible from the violent



efforts of respiration, to confine it to the
part. When the bronchia are affected, pla-
ced on the sternum they are often highly
important. In addition to the means
here advised, every collateral aid should
be given, by steaming with warm water,
or warm vinegar and water. The free use
of diluents, such as barley water, flax seed
tea, gum arabic emulsion, and in pro-
tracted cases a strong decoction of polyg-
nema, as recommended by Dr Archer of
Maryland, not as an antispasmodic, but
expectorant. The hive syrup, a prescrip-
tion of Professor Coxe, is here a valuable
preparation.

Laryngotomy, as a dernier resort, has
in some instances been resorted to, and
cases are on record of life being saved there-
by. In genuine idiopathic croup, unac-



accompanied by bronchial effusion, after the
failure of other remedies, it certainly ought
to be tried, as it is the imperative duty of
the physician, however forlorn the hopes,
to use every possible means to rescue his
patient from death.

